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ABSTRACT

This observational study was conducted to investigate the nature of individual interactions within groups. The research has demonstrated that cooperative learning groups can lead to improved achievement and more positive attitudes. The time-on-task research has suggested that increasing the time a student interacts with information or materials increases the amount a student is likely to learn. The present study demonstrated that a cooperative goal structure facilitates verbal interactions and appropriate behavioral interactions. Undergraduate educational psychology students (N=44) were involved in small group work using case studies. The usual rewrite option for assignments was changed to create differing goal structures. The students either: rewrote the assignment after the small group time (individual), rewrote the assignment together as a small group (cooperative), or discussed the assignment without a rewrite option. The cooperative groups demonstrated more appropriate behaviors and more verbal behaviors. However, the effects of the cooperative goal structure did not appear to be maintained into the discussion group, which demonstrates that the effects of a cooperative goal structure are not maintained when the goal structure changes. (Author/LL)

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Small Group Goal Structures and College Student Interactions

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A paper presented at the annual meeting of the American Educational research Association, Chicago IL.

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ABSTRACT

Small Group Goal Structures and
College Student Interactions

The research has demonstrated that cooperative learning groups can lead to improved achievement and more positive attitudes. The time-on-task research suggested that increasing the time a student interacts with information or materials, the more the student is likely to learn. This study demonstrated that a cooperative goal structure facilitates verbal interactions and more appropriate verbal and behavioral interactions. Undergraduate educational psychology students were involved in small group work using case studies. The rewrite option to the assignment was changed to create differing goal structures. The students either: rewrote the assignment after the small group time (individual), rewrote the assignment together as a small group (cooperative), or discussed the assignment without a rewrite option. The cooperative groups demonstrated more appropriate behaviors and more verbal behaviors. However, the effects of the cooperative goal structure did not appear to be maintained into the discussion group.

Small Group Goal Structures and College Student Interactions

The time-on-task research (Karweit, 1984) suggested that the more time that a student spends interacting with information or materials, the more the student is likely to learn. This conclusion, while not surprising, begs the question, "How do you get students to spend more time on task?" Studies on the effects of individualistic, competitive, and cooperative goal structures on achievement (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981, Slavin, 1988) as well as attitudes (Johnson & Johnson, 1981; Slavin, 1982) have supported the use of cooperative learning. This study explored goal structures as a facilitating event for time-on-task on the college level.

Cooperative learning requires cooperation among group members, rather than competition or a purely individual effort. With an individual goal structure the success or failure of an individual attempting to reach a goal is independent of others attempts to reach their goal. A competitive structure requires that few can attain the goal, therefore they must compete. The success of an individual is only possible if others fail. With a cooperative goal structure an individual can succeed in attaining the goal only if others succeed in attaining their goal. Therefore, they must cooperate.

It has been hypothesized that communication mediates the

effects of cooperative learning groups (Kalkowski, 1988). If the nature of communication and behavior change relative to the goal structure of a group, then a clearer understanding of the facilitating qualities of goal structures should be explored. Although the outcome of cooperative learning has been established in various settings, few studies have investigated the nature of individual interactions within groups by observation. In an observational study on the use of cooperative learning with emotionally disturbed students, on-task behaviors were increased under a cooperative goal structure (Salend & Sonnenschein, 1989). Earlier research suggested increased student involvement in instructional activities under cooperative learning conditions (Johnson & Johnson, 1978). This research would suggest that cooperative learning is a facilitating event for increasing time-on-task which leads to increased achievement.

The purpose of the study was to investigate the nature of undergraduate student interactions in group situations with varied goal structures. The major concern is whether changing goal structures will change on-task behaviors. The two main research questions addressed by this study were:

(1) Does a cooperative goal structure lead to an increase in verbal interactions in small groups?

(2) Does a cooperative goal structure lead to more appropriate behaviors within small groups?

Methods

Instrument

The observational instrument used in the study was the StRoBe (Marchant, 1989, in press). The StRoBe is a simple measure of verbal versus non-verbal behavior and appropriate versus inappropriate behavior. It is suitable for observations of small groups as well as whole class instruction. It is time based with entries made every five or ten seconds for a student. The observer then makes an observation of the next student. This process continues until every student is observed. Then the procedure is repeated for the duration of an activity.

Subjects

The study involved observations of 21 subjects participating in individual and cooperative goal structured group activities, and 23 subjects participating in cooperative and discussion structured group activities. The subjects were university education students enrolled in one of six sections of an undergraduate educational psychology course during the Spring Semester of 1990. The classes met three days each week with one session devoted to small group work. Each class of approximately 50 students was divided into three groups and then broken into small groups of three or four students. There was a trained group leader for each of the three groups within a section. The original grouping of students into small groups was made

randomly. Approximately halfway through the semester the students were regrouped. These small groups were designed to be heterogeneous based on previous case study scores. One randomly selected small group of three or four students were observed from each section.

Procedures

For the past few years the students in the educational psychology course wrote responses to case studies and reviewed them in the small groups with an option to rewrite them. Procedures for the groups followed those outlined by Rau and Heyl (1990). For this study the function of the small groups were altered by changing the rewrite aspect of the assignment. In all instances the students were required to complete an individual response to the case studies for a grade prior to the small group session. However, the follow-up or rewrite option was varied to change the goal structure for the groups:

Observation 1 - Individual - The students wrote responses to the case study and turned it in. The students discussed the case study in small groups. After the small group session the students could rewrite the case study to be turned in the next week for the total number of points. This was their second case study experience.

Observation 2 - Cooperative - The students wrote responses to the case study and turned it in. The students then

rewrote the case study in their small groups. The total points were divided between the individual case study response (10 points) and the group case study response (5 points). Everyone in the small group received the same point value for the group case study project. This was their third case study experience.

The members of the groups changed after these two observations.

Observation 3 - Cooperative - The small groups functioned as described in Observation 2, but with different group members. This was their fifth case study experience.

Observation 4 - Discussion - The students wrote their case studies for the total number of point available. They were to discuss the case study in their small groups, but were not allowed to rewrite them. It should be noted that the final exam for the course was a case study. This was their sixth of seven case studies.

Each small group in each section was observed for approximately 20-25 minutes for each observation. Behaviors were not recorded during and 30 seconds after interventions made by instructors or group leaders. Observations were made by two recorders using the StRoBe. One of the recorders was blind to the nature of the group goal structures.

A repeated measures design was used to analyze the

differences between the individual and cooperative group and the cooperative and discussion group. T-tests were used to compare the two cooperative groups and the individual and the discussion group.

Results

The ratings from the two observers correlated at .88 for specific entries and .91 for the "verbal" and the "appropriate" categories. Bias was not indicated by the discrepancies between the observers. The repeated measures tests determined a significant difference between all of the measures compared (see Table 1). There were no significant differences between the two cooperative learning groups. There was less appropriate behavior in the Discussion group than in the Individual group ($p < .05$).

Insert Table 1 about here

Individuals within the cooperative learning groups were more verbal than either of the other two groups (see Table 2). This was despite the fact that one of the students in each cooperative group was rewriting the case study responses during the group work time. The individuals within the cooperative learning groups were also more appropriate in their behaviors (both verbal and non-verbal).

Insert Table 2 about here

Conclusion/Discussion

Although the structure of the college course required a less than perfect research design be implemented, the results suggested that goal structures had an effect on the quantity of verbal interactions and the quality of verbal and behavioral interactions. The results supported the hypothesis that cooperative learning facilitates improved communication and time-on-task. Since the behaviors were not continued into the Discussion group, the results also demonstrated that the effects of a cooperative goal structure are not maintained when the goal structure changes. This supports Salend and Sonnenschein (1989) finding concerning the lack of maintenance effects from cooperative learning.

In addition to the quantitative results reported from the study, some qualitative observations were made. Although all of the group leaders and instructors were familiar with cooperative learning, in fact a STAD cooperative learning demonstration was part of the course, there was some resistance from them in implementing a cooperative goal structure in the small groups. There was some concern over the removal of the individual rewrite option and the distribution of points for the individual and

group responses. A 50/50 percent point distribution between individual and group case study responses was recommended. However, it was finally agreed that 33 percent of the points would be attributed to the group work.

By the end of the semester the instructors and group leaders expressed support for the cooperative goal structure. Students, many of whom said they preferred the option to rewrite for all of the points, indicated that they understood the importance of the group work and cooperative structure.

Ken Howey (1990) has emphasized the need for developing small group skills in teachers. This is important as a basis for directing student groups as well as functioning with colleagues. Although teacher education programs often teach small group work as part of a methods course, education students seldom have an opportunity to function in small groups on a regular basis. Opportunities to experience work in small groups with cooperative goal structures are even scarcer. Education students need to experience, as well as be taught about varied goal structures.

Further goal structure studies should attempt to use only blind observers and seek to change goal structures while maintaining the same group membership. The order of the goal structures should be varied as much as possible. Qualitative studies may provide more insight into more specific differences in interactions based on goal structures.

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Table 1

Repeated Measures Analysis of Appropriate Behavior, Verbal Behavior, and Interactions (StRoBe) for Individuals in Groups with Varying Goal Structures

Source	df	MS	Error df	Error MS	F	p<
Individual vs. Cooperative						
Behavior						
Appropriate	1	1085.19	20	102.26	10.61	0.005
Inappropriate	1	558.38	20	44.73	12.48	0.005
Verbal						
Appropriate	1	4936.54	20	103.91	37.71	0.001
Inappropriate	1	187.16	20	29.97	6.24	0.05
Appropriate	1	1392.19	20	78.24	17.80	0.001
Verbal	1	3201.29	20	117.43	27.26	0.001
Cooperative vs. Discussion						
Behavior						
Appropriate	1	15.75	22	250.50	0.06	ns
Inappropriate	1	1800.38	22	84.00	21.43	0.001
Verbal						
Appropriate	1	4525.11	22	186.94	24.21	0.001
Inappropriate	1	487.89	22	25.33	19.26	0.001
Appropriate	1	4006.30	22	114.36	35.03	0.001
Verbal	1	2045.42	22	204.58	10.00	0.01

Table 2

Mean Percent of Behaviors (StRoBe) for Individuals in Groups with Varying Goal Structures

	Goal Structures			
	Indiv	Coop 1	Coop 2	Discuss
Behavior				
appropriate	64.05 (14.92)	53.88 (18.14)	56.20 (15.80)	57.37 (16.19)
inappropriate	11.43 (7.29)	4.14 (5.33)	5.09 (5.58)	17.60 (11.16)
Verbal				
appropriate	17.26 (11.63)	38.95 (17.48)	35.68 (14.67)	15.84 (12.97)
inappropriate	7.26 (9.76)	3.04 (4.82)	3.03 (4.59)	9.54 (8.13)
Appropriate	81.31 (12.46)	92.82 (9.76)	91.88 (7.85)	73.22 (12.65)
Verbal	24.52 (14.42)	41.99 (17.61)	38.71 (16.20)	25.37 (16.57)

Note. = Indiv = Individual Goal Structure.
Coop = Cooperative Goal Structure.
Discuss = Discussion Group.
( ) = Standard Deviation.
n for Indep and Coop 1 = 21.
n for Coop 2 and Discuss = 23.